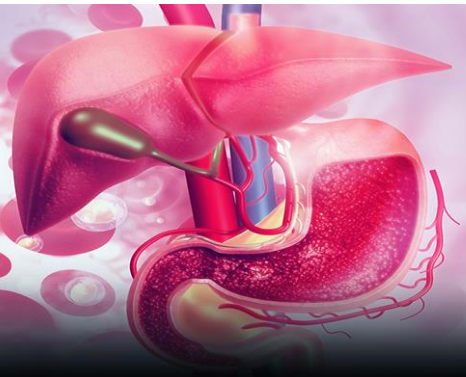


Enteron



Dear Doctor,

Greetings from Micro Labs limited.

Inside This Issue

- Routine Screening for SARS-CoV-2 not necessary for GI Symptoms: AGA 1
- Relationship Between Arousals from Sleep and Night-Time Gastroesophageal Reflux Events 3
- Management of *Helicobacter pylori* and its association with future *Clostridium difficile* Infection 7

Should you require any specific article or medical information, please feel free to contact us at medicalsolutions@microlabs.in
Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Ltd

Routine Screening for SARS-CoV-2 not necessary for GI Symptoms: AGA

Gastrointestinal symptoms might be less frequent in COVID-19 than commonly believed, and, according to a brief analysis by the American Gastroenterology Association (AGA), symptomatic patients without any justification for testing do not require SARS-CoV-2 monitoring.

Dr. Shahnaz Sultan of the University of Minnesota, Minneapolis VA Healthcare System, said the symptoms of GI are an important part of the COVID spectrum; however, they rarely occur as isolated signs. The data suggest that GI symptoms may precede other symptoms but most often occur in conjunction with COVID-related symptoms such as dry cough, fever, fatigue, taste loss or odor. In its systematic review and meta-analysis of 118 studies, Dr. Sultan and colleagues on the AGA Clinical Guideline Committee and Clinical Practice Update Committee assessed the prevalence of COVID-19-related diarrhea, nausea, vomiting, abdominal pain and liver function test (LFT) abnormalities. Overall, 7.7% of COVID-19 patients had diarrhea, 7.8% had nausea / vomiting, 3.6% had stomach discomfort, 15% had an irregular AST or ALT, and 16.7% had an irregular bilirubin, Gastroenterology researchers say.

The prevalence of AST / ALT GI symptoms and elevations was higher in studies that took place outside of China. It became impossible to determine when GI symptoms were identified whether they were independent symptoms or whether patients still had overlapping symptoms, characteristic of COVID-19. And none of the studies reported whether patients on admission were systematically assessed for gastrointestinal symptoms. Most reports failed to record the length of GI symptoms prior to presentation.

Based on the minimal available knowledge, the committees produced some best-practice recommendations about COVID-19's consultative management. For high-risk contact exposure, outpatients with new-onset diarrhea or other GI symptoms should be evaluated and questioned about the symptoms typically associated with COVID-19, they advise. A history of GI symptoms should be asked for patients hospitalized with suspected or known COVID-19, including their onset, characteristics, duration and severity.



SARS-CoV-2 testing can be required in high-prevalence environments, but there is inadequate evidence to endorse stool examination as part of standard clinical procedure for treatment or control of COVID-19, the authors add. Dr. Sultan added that with short-term testing, how to decide who does or does not warrant testing; and if testing were more widespread, they would have a low threshold to test everyone even if they do not have classic respiratory symptoms.

Patients with elevated LFTs should be tested for possible etiologies in the sense of suspected or confirmed COVID-19. Patients hospitalized with suspected or confirmed COVID-19 should have baseline LFTs at the time of admission, and LFT surveillance should be considered during the hospitalization, particularly for those receiving COVID-19 drug therapy because several of these medications that trigger liver dysfunctions.

These practices are not intended to impose a standard of care, particularly in the light of the tenuous evidence base, and the authors anticipate the need to update the guideline within the next few months. Dr. Sultan said many questions about SARS-COV-2 still remain unanswered. It is important that researchers pursue a rigorous approach in collecting evidence on the clinical manifestations of COVID-19 and observe patients over a sufficient period of time so that we can obtain a clearer understanding of the prognostic effects of these differing clinical results.

Dr. Srinivas R. Vunnam and Dr. Rama R. Vunnam from Nebraska University, Omaha, who have recently examined COVID-19 GI, hepatobiliary and pancreatic effects, disagree with some of the suggested procedures.

They said COVID-19 testing should be done to identify new cases in a high-prevalence setting, as GI symptoms can precede respiratory symptoms by a few days. We can't afford to miss any COVID-19 cases, since one person diagnosed with COVID-19 transmits the infection to around 5.7 people. In addition to the test-based approach recommended by the Centers for Disease Control and Prevention (CDC) to guide disease recovery and its implications in fecal-oral transmission, stool testing should be done in all hospitalized COVID-19 patients with GI symptoms to detect live viruses. It may give insight in continuing contact isolation precautions for patients with persistent positive stool cultures after respiratory samples are negative. They concluded that there is a lag between new information and guidelines as they are getting new information about COVID-19 every day. We should all be updated with the best possible evidence to give our patients and our community excellent care.

Source: Sultan S, et al. AGA Institute Rapid Review of the GI and Liver Manifestations of COVID-19, Meta-Analysis of International Data, and Recommendations for the Consultative Management of Patients with COVID-19, *Gastroenterology* (2020), doi: <https://doi.org/10.1053/j.gastro.2020.05.001>.



Relationship Between Arousals from Sleep and Night-Time Gastroesophageal Reflux Events

INTRODUCTION

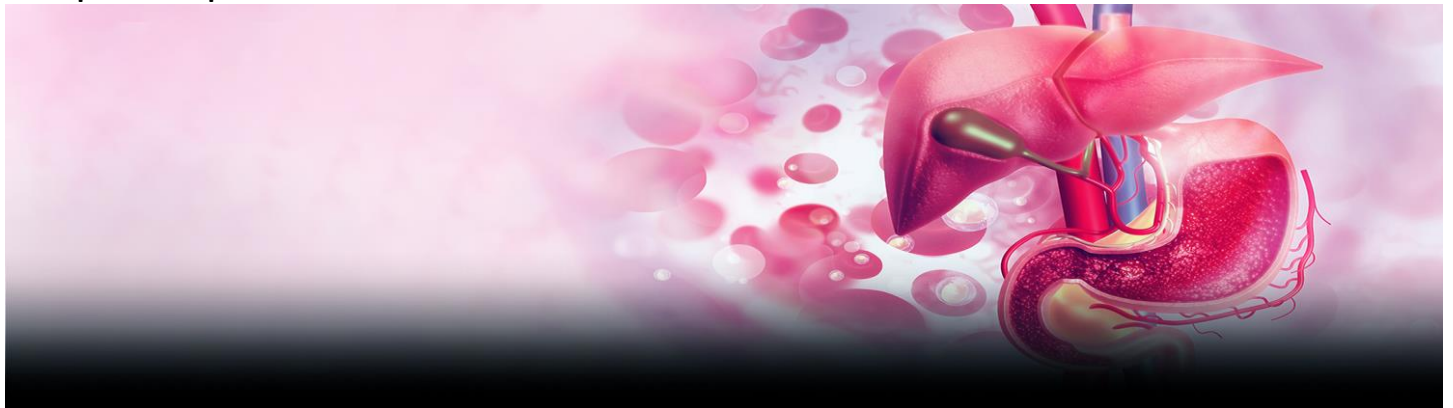
Symptoms of night-time gastroesophageal reflux (nGER) are considered Interrupting night, inducing daytime sleepiness and tiredness. Proton pump inhibitor treatment for GER improves Subjective consistency of the body, indicating night-time reflux incidents directly affecting the quality of your sleep. The exact temporal association between nGER events and arousals remains uncertain, but it is widely agreed that nGER incidents arise during brief arousals or more frequent sleep awakenings rather than during stable sleep. It remains precisely unclear whether nGER events precipitate arousals and awakenings or, conversely, arousals and awakenings are required for or precipitate nGER events.

There are 3 possible scenarios which could support these relationships:

- (i) A reflux event occurs during sleep, provoking arousals/awakenings (a type 1 event);
- (ii) A reflux event occurs during arousal/awakening from sleep (a type 2 event); and
- (iii) Sleep is disrupted by the development of heartburn minutes after the onset of a reflux event where there has been a failure of the esophageal acid clearance mechanism (a type 3 event).

The above can be especially troublesome, in these situations Significantly prolonged acid clearance time (ACT) and substantial damage to the esophageal mucosa can result from an event. Many experiments have attempted to describe the associations between sleep, anticipation and GER activities using wrist-worn actigraphy tools to approximate the rhythms of sleep and wake. Nevertheless, these instruments cannot assess the different phases of sleep and appear to overlook the volume of wakefulness after the onset of sleep. Although useful for determining overall sleep / wake cycles, the temporal association between the shifts in sleep condition and nGER events cannot be precisely defined.

Polysomnography (PSG), which includes the monitoring of EEG, electrooculogram and electromyogram (EMG) during sleep, is the most accurate tool for determining the frequency and incidence of arousals and awakenings. Depending on typical EEG, EMG, and electrooculogram measurements, PSG may be used to distinguish sleep into its different phases and to assess correctly the intensity and pacing of arousal and waking. Such technology has not historically been used to analyze the temporal interactions between nGER activities and sleep state shifts, an evaluation that demands the accuracy it provides. To address this deficiency, the aim of this study was to investigate the relationships between PSG-defined arousals and awakenings from sleep and nGER events.

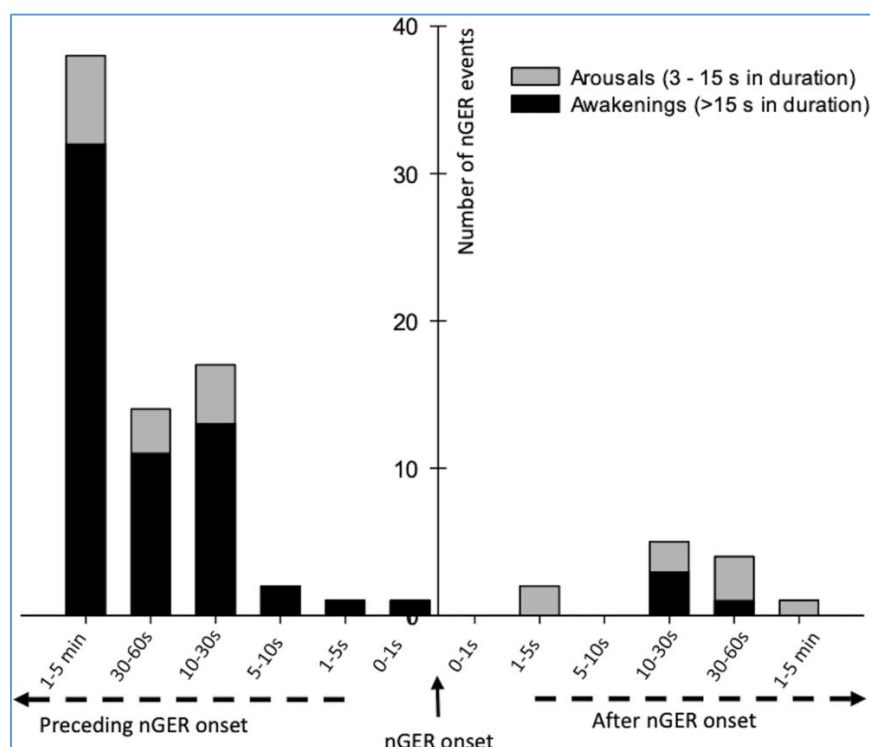


METHODS

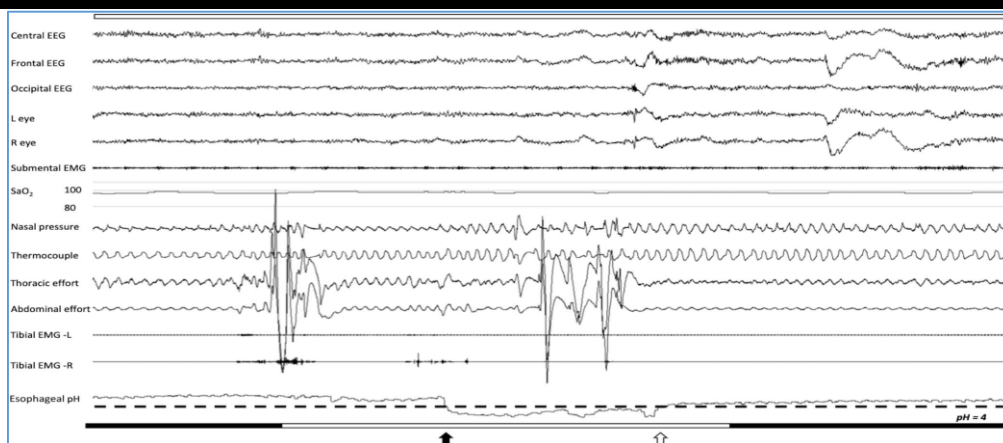
Individuals between 18 and 70 years who had undergone a gastroscopy within 12 months underwent simultaneous 24-hour pH/impedance monitoring and in-laboratory PSG. The temporal relationship between each nGER event and sleep/arousals/awakenings was determined for each participant. Analyses were limited to the sleep period (between “lights out” and time of final waking).

RESULTS

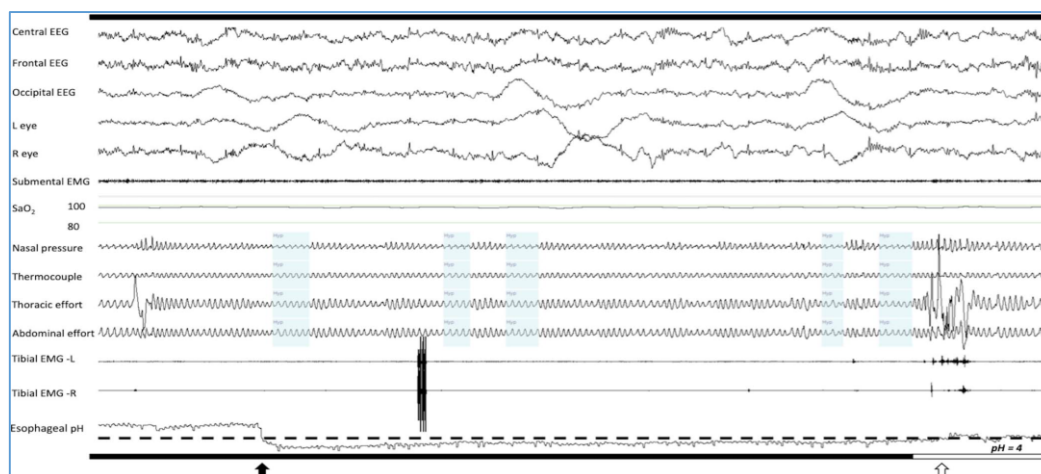
Analyses were conducted on the data from 25 individuals, 64% of whom had nGER episodes (565 events per person, range 1–18) and 64% of whom had obstructive sleep apnea (OSA, mean apnea–hypopnea index 20.6 ± 11 events/hr, range 6–44). There were no differences in PSG-determined sleep duration, sleep efficiency, sleep architecture, arousals/awakenings, or sleep apnea severity between those with nGER and those without. Most nGER events (82%) occurred during a PSG epoch that had been classified as wake. Arousals/awakenings preceded almost all events (73/76), whereas fewer had an arousal/awakening after the event (15/76).



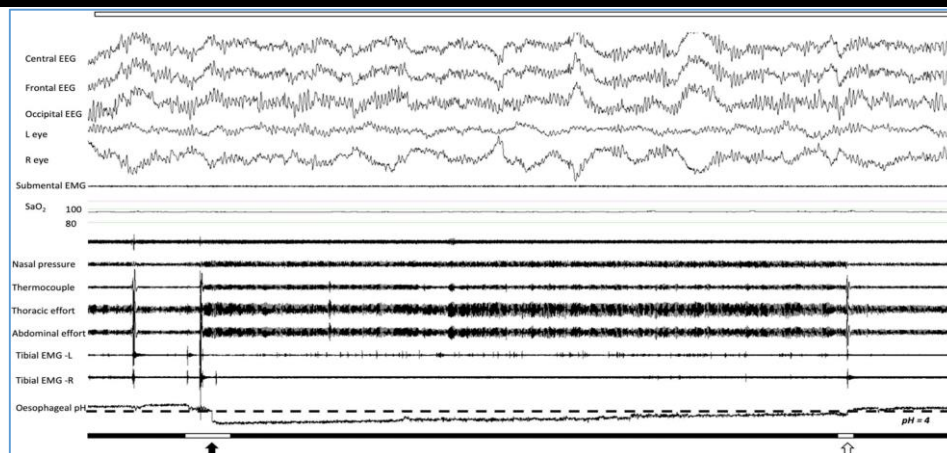
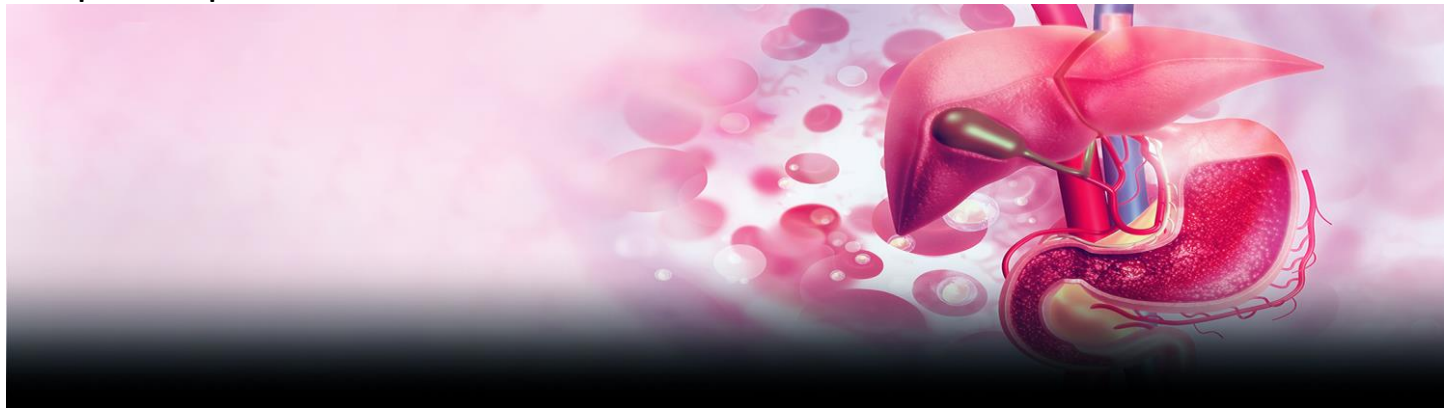
Number of nGER events associated with awakenings from sleep (seconds in duration, solid black shading) and arousal from sleep (3–15 seconds in duration, gray shading). The x axis represents the time relative to nGER onset that arousal/awakening occurred. nGER, night-time gastroesophageal reflux.



nGER event occurs during an arousal or awakening and is cleared before the individual resumes sleep (Dent et al. (13) type 2 event). Dashed line represents pH5.4; the nGER event begins when the pH drops below this level and ends when it returns to above this level. The epoch on the top panel is the 30 seconds period during which the onset of nGER event occurs. Hypnogram above upper pane and below lower pane represents the sleep stages which occurred during this section of recording (white—wake; black—sleep). Upper panel 30 seconds; lower panel 5 min. EEG, electroencephalogram; EMG, electromyogram; nGER, night-time gastroesophageal reflux.



nGER event (onset marked with arrow) occurs during a period of stable sleep cleared during an awakening/arousal from sleep (Dent et al type 1 event). Dashed line represents pH5.4; the nGER event begins when the pH drops below this level and ends when it returns to above this level. The epoch on the top panel is the 30-second period during which the onset of nGER event occurs. Hypnogram above upper pane and below lower pane represents the sleep stages which occurred during this section of recording (white—wake; black—sleep). Upper panel 30 seconds; lower panel 1 hour. EEG, electroencephalogram; EMG, electromyogram; nGER, night-time gastroesophageal reflux.



nGER event occurs during a period of wakefulness. The patient then falls asleep before the event can be cleared, resulting in a prolonged esophageal acid clearance time of approximately 32 minutes. The event is only cleared when the patient next arouses from sleep (Dent et al. (13) type 3 event). Dashed line represents pH 5.4; the nGER event begins when the pH drops below this level and ends when it returns to above this level. The epoch on the top panel is the 30-second period during which the onset of nGER event occurs. Hypnogram above upper pane and below lower pane represents the sleep stages which occurred during this section of recording (white—wake; black—sleep). Upper panel 30 seconds; lower panel 1 hour. EEG, electroencephalogram; EMG, electromyogram; nGER, night-time gastroesophageal reflux.

- Arousal and awakening from sleep were more likely to precede than follow nGER events, suggesting that reflux events are precipitated by arousal from sleep rather than the converse.
- nGER does not affect sleep quality.

CONCLUSION

This research used in-laboratory PSG gold standard to test the spatial associations between nGER activities and sleep arousal. It showed that most of the nGER events not only occur and are cleared during periods of wakefulness after sleep onset but are also usually preceded by arousal or sleep awakening, suggesting that arousal may be a nGER precipitator. This study also suggests that OSA is associated with an increase in nGER events, possibly due to an increase in sleep-wakefulness or arousal periods that are characteristic of OSA and seem to underlie most of the nGER events.

REFERENCES

Shepherd K, Ockelford J, Ganasan V, Holloway R, Hillman D, Eastwood P. Temporal Relationship Between Night-Time Gastroesophageal Reflux Events and Arousals From Sleep. *Am J Gastroenterol*. 2020;115(5):697-705.



Management of *Helicobacter pylori* and its association with future *Clostridium difficile* Infection

INTRODUCTION

Helicobacter pylori (HP) infection is common, affecting an estimated 50 percent of the world, and can lead to a variety of gastrointestinal pathologies, from ulcer to malignancy. Consequently, consensus guidelines recommend treatment of all known HP infections and subsequent testing to confirm eradication. Treatment consists of a 1–2-week multidrug treatment that will contain several antibiotics. Given the growing awareness of the untoward effects of antibiotics, such as rising resistance rates and side effects, there are those cautioning against HP eradication. They argue that HP eradication can be linked to antibiotic resistance; Antibiotic mediated infections and microbial modifications that could have downstream impacts. The association of HP treatment with Clostridium difficile infection (CDI) is a particularly disturbing yet uninvestigated area.

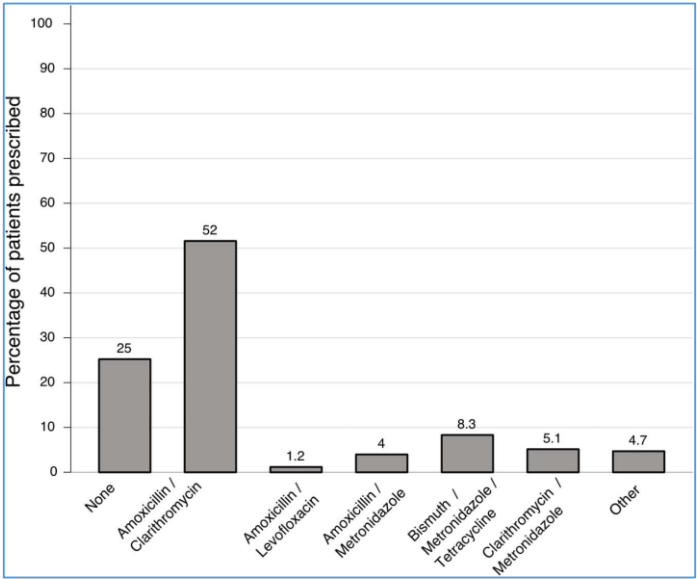
CDI is one of the most severe health-associated diseases in the US population and results in substantial morbidity and mortality. This has been seen that antibiotic stewardship decreases the effects of CDI, which is an essential public health program. Accordingly, HP's inherently deleterious results must be closely weighed against untoward antibiotic consequences, like CDI. Previous research on the production of CDI following HP eradication therapy was typically restricted to case studies, thus restricting the opportunity to draw conclusions. No research has yet analyzed CDI after HP thoroughly, taking into consideration medical conditions, risk factors for CDI (previous infection and current hospitalization), antibiotic treatment, and the occurrence of verified eradication. Here, the largest North American cohort of patients with HP are utilized to identify the risk factors for future CDI and the impact of HP treatment on future CDI.

METHODS

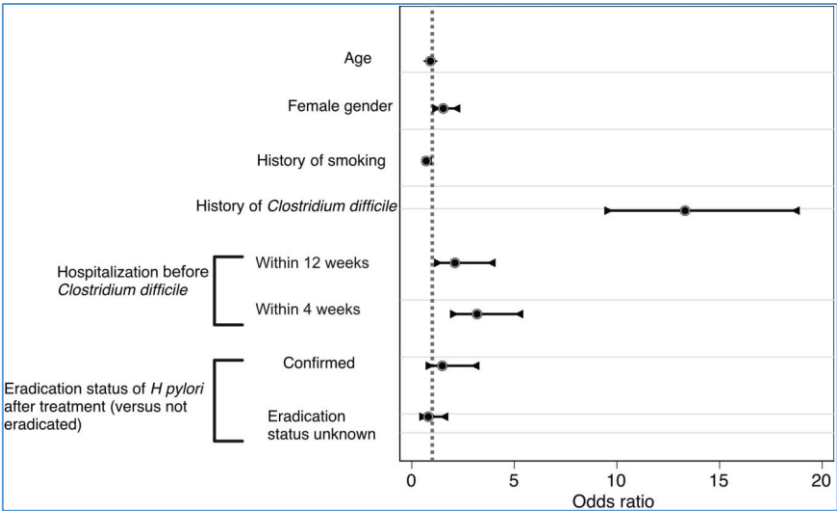
A retrospective cohort study within the Veterans Health Administration on 38,535 patients (median age 61.8 years; 91.8% men) with detected HP between January 1, 1994, and December 31, 2018 was conducted. Primary outcome was a positive laboratory test for CDI within 3 months of HP detection. Multivariable logistic regression evaluated the following: patient demographics, previous CDI, recent hospitalization, and whether the patient received HP eradication therapy (by antibiotic and regimen, and including proton pump therapy). Secondary analysis of those treated evaluated whether eradication of HP was associated with CDI.

RESULTS

Among 38,535 patients, 28,818 (74.8%) were treated for HP and 284 (0.74%) developed CDI. In multivariable analysis, prominent factors included hospital discharge within 12 weeks (odds ratio [OR] 2.15; 95% confidence interval [CI]: 1.22–3.77) and 4 weeks (OR 3.46; 95% CI: 2.18–5.48), $P < 0.001$, and previous CDI (OR 12.5; 95% CI: 9.21–17.0, $P < 0.001$). Treatment of HP was not associated with future CDI. In secondary analysis of those treated, confirmation of eradication was not associated with future CDI (OR 1.49; 95% CI: 0.67–3.29).



Bar graph displaying the frequency of prescribed *H. pylori* regimens (not including proton pump inhibitor prescription). Other includes rifabutin and other regimens as per The American College of Gastroenterology.



Graphical depiction of odds ratios and 95% confidence intervals based on multivariable logistic regression model evaluating the risk factors for CDI after treatment of HP. CDI, *Clostridium difficile* infection; HP, *Helicobacter pylori*.



- The rates of *C. difficile* infection after *H. pylori* is low.
- The biggest risk factors include previous *C. difficile* infection and recent hospitalization.
- Neither treatment nor eradication of *H. pylori* is associated with future *C. difficile*.

CONCLUSION

In a large study of US HP patients, it was shown that CDI is not associated with either treatment or eradication of HP. Preceding *C. Hard* infection and the recent discharge from hospitals, proven risk factors for CDI, are closely linked. These findings suggest that treatment should continue to be prescribed upon detection of HP.

REFERENCES

Kumar S, Metz DC, Kaplan DE, Goldberg DS. Treatment of *Helicobacter pylori* Is Not Associated with Future *Clostridium difficile* Infection. *Am J Gastroenterol*. 2020;115(5):716-722.



This scientific input is prepared from the Department of Medical Services, an initiative of M/s Micro Labs Limited under the aegis of Micro Knowledge Academy. The information contained herein is for education purpose only. The content is developed by compiling information from various authentic and published literatures. Although great care has been taken to assure the accuracy of the publication, M/s Micro Labs Limited shall not be responsible or in any way liable for any inaccuracy, errors, or omissions resulting from negligence or otherwise howsoever or any consequences arising there from. In spite of best efforts the information in this publication may become outdated over time. M/s Micro Labs Limited shall not be responsible in any manner whatsoever, for any action taken, opinions expressed, advice rendered or accepted, any direct, incidental, special or consequential loss and damage caused on the basis of any material or information presented in this publication / update.